

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF FISH AND GAME
MARINE RESOURCES REGION

REPORT FOR THE MONTH OF JULY 1973

Commencing on July 16 common murre deaths were reported from the coastal zone reach extending from Half Moon Bay south to the Santa Cruz area. Estimated mortality ranged from 2500-4000 birds. No cause for the die-off has been established, and the incident is similar to one documented in 1968. As of the end of the month, losses seem to be tapering off.

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1. WILDLIFE PROTECTION

- A. Canneries: Bad weather and lack of fish forced many of the larger purse seiners to fish in African waters or the Eastern Pacific Regulatory area for yellowfin tuna. Tuna boats under 400 tons reverted to the 15% yellowfin quota on July 16th. Their 6,000 ton additional quota has been reached. Landings have remained slow, however canneries have been busy packing imported tuna.

Albacore landings were very poor along the entire west coast. Only two truck loads were received from Oregon and Washington. A few local boats made landings from scouting trips eight to nine hundred miles at sea. Albacore boats have been instructed by their association not to sell on open tickets, but to sell at auction. They are attempting to establish a price of \$825 plus \$41 research fees per ton.

The American Tuna Boat Association announced on July 25th that they were holding their boats in port to establish a price increase on yellowfin tuna and skipjack. The starting price on yellowfin was \$477; currently is \$482.

Local seiners have had a poor month for mackerel. Most have concentrated on bluefin tuna along the Orange-San Diego coastline with fair results. Some of the larger boats (150-200 ton) are planning to fish anchovies for reduction when the northern season opens August 1, making deliveries to southern California. No price for anchovies has been set but rumor is \$55 per ton.

- B. Market Fish: Heavy landings of salmon were taken from Monterey Bay the first ten days of the month. Broadbill, bluefin tuna, halibut and white seabass landings soared in southern California. Also, large numbers of black abalone have been landed. Bluefin dropped from \$500 to \$450 and white seabass prices rose and fell.

Squid landings were nil in Monterey and flatfish landings were poor at San Francisco and Noyo. Salmon landings were good at Eureka.

Some markets are complaining that fishermen are selling swordfish directly to restaurants.

- C. Sportfish: Salmon fishing was good in northern California from Monterey to Eureka, and bluefin tuna hit well for a short while in the San Diego area. Short barracuda and halibut were plentiful in southern California and good fishing was reported for bass, bonito, and bottom fish.

There have been some complaints of sport fishermen harpooning swordfish. There were complaints also against gill nets in the San Diego area.

- D. Weather: Weather ranged from bad to good throughout the state. Strong winds and fog slowed fishing efforts at times, with small craft warnings in northern California.
- E. Law Enforcement: One tuna boat was arrested for violation of the yellowfin tuna regulations. Seventeen thousand, three hundred and ninety six pounds of yellowfin were seized and sold for \$4,148.95.

Weather hampered patrol efforts during minus tides on the north coast. Abalone poachers are believed to be working nights along the Mendocino coast.

Filleting of sportfish and the sale of sport caught fish by deckhands is becoming an increasing problem. The courts are also getting lenient in many areas; we had 58 suspended sentences this period.

- F. Pollution: Marine wardens continued to monitor the seep off Santa Barbara. Eighteen oil spills were reported this period. One in Eureka with 10-30 gallons of lube oil and seventeen in the Los Angeles area.

Merchant vessels caused eight spills resulting in 163 barrels being lost. Industry caused six spills involving 267 barrels of oil, and three spills of unknown source involving one barrel. Seven cases were completed for violation of 5650 this period. Six other complaints are on file.

- G. Miscellaneous: Marine wardens attended ten meetings this period. Eighteen men from land patrol attended a two day marine resources orientation course in the Long Beach area.

2. BOTTOMFISH

A. Fishery

Flatfish: A slowdown in the fishery occurred as windy offshore weather prevented trawling during part of the month. The trawl fleet fished sporadically between Santa Barbara and Cape Blanco, Oregon. Dover sole remained the primary species. Good catches were made in 300 to 400 fathom depths off central and northern California. Light catches of other flatfish species complemented Dover sole landings.

Bottomfish processing in California has undergone considerable change but filleting flatfish has changed little during almost 100 years of trawling. The hand fillet method is still the sole method used; however a processor has recently installed skinning machines to skin flatfish fillets at several plants.

Roundfish: Sablefish and channel rockfish taken in the deep water fishery for Dover sole comprised most of the roundfish landings at northern California ports. Rockfish landings were moderate at Monterey, Morro Bay, and Santa Barbara during July.

B. Research

Flatfish: Age and size composition sampling of the catch was accomplished at major ports.

Adverse weather limited trawling by the N. B. SCOFIELD during the study of Dover sole in the Punta Gorda area. To date, only 6 trawls in 350 to 600 fathoms were completed. Dover sole were not caught in quantity but 261 Dover sole and 49 sablefish were tagged. Five trawls were made off San Francisco to obtain background information on the area of the proposed San Francisco outfall and to collect fish for the Pathology Project. Twenty-one species of fish were present. Small Pacific herring was the predominant species in numbers while English sole predominated by weight.

Length-weight relationships of two Humboldt Bay English sole samples obtained by Dr. Katkansky were computed.

Routine editorial procedures on trawl logs and tickets and aging of market samples were accomplished.

Roundfish: Rockfish landings were sampled for species and size composition at central California ports. Bocaccio and chilipepper rockfish were the predominant species; several other species also appeared in trawl catches.

The Soviet research trawler SESKAR has been operating off the coast since the end of May. The vessel has been engaged in hydrobiological studies and acoustical and trawl surveys of hake and rockfish between California and Canada. SESKAR scientists have given approval for U.S. observers to participate during 30 man days in late August and early September. The U.S. will have 2 observers aboard simultaneously for 15 days and request an additional 15 days for observation off California. Approval is being sought for the additional time and if approved the Bottomfish staff will provide the observer.

3. SHELLFISH

A. Fishery

Crab: The crab season closed in central California June 30. The total landings for the season were: San Francisco area, 290,000 pounds; Monterey area, 394 pounds; Morro Bay area, 48,000 pounds. This was the worst season ever for the San Francisco area. The previous low season was 1971-72 with landings of 320,000 pounds. The only improvement shown over last season was in the Morro Bay area with an increase in landings of 34,000 pounds.

Northern California's crab landings totaled 1,107,901 pounds through mid-July. Landings for the month of July have been very light.

Fishermen and processors report many crabs to be in a soft condition.

Shrimp: Area A shrimp fishermen landed 421,000 pounds during the first three weeks of July, bringing the season total to 621,000 pounds. Best fishing has been from just north of the Klamath River to Redding Rock in 60 to 75 fathoms.

Ten vessels are now engaged in the fishery, and more are expected if the fishing holds up. Average catch per hour for the season to date is 635 pounds.

The Oregon Fish Commission reports landings of approximately 500,000 pounds from Area 19 (Oregon border to Rogue River) through May.

No ocean shrimp effort was reported in Areas B-1 (Fort Bragg) and C (Morro Bay) during July. Area B-2 (Bodega Bay) is closed.

Bay shrimp trawlers are making good catches of shrimp off China Camp and Point Pinole.

Oysters: Harvesting is still proceeding at companies at Tomales Bay and Drakes Estero. Some summer mortality has been reported at Tomales Bay Oyster Company but little or none at Drakes Estero.

Coast Oyster Company in Eureka is only harvesting twice a week.

Clams: Four low tides were monitored at Clam Beach for razor clam catch and effort. The 78 diggers interviewed dug an average of 17 clams apiece. Mean size of 991 clams measured was 100 mm.

B. Research

Crab: Trapping and trawling operations conducted by Brown and Caldwell, under contract to the City of San Francisco, at the proposed waste discharge site were observed. The results of the ecological studies will be compared with the information obtained at the same site by the Shellfish project when received.

Ring netting for 1973 year class crabs was conducted in several locations in San Francisco and San Pablo Bays. Two sampling trips were made aboard the bay shrimp boat JEWEL K. Six 30-minute tows with an 18-foot beam trawl produced approximately 3,700 crabs of the year. The sizes of the 1973 year class crabs were similar for both the ring netting and the beam trawling. The crabs had a size range of 18-62 mm which corresponded to the 4th through the 7th instars.

Crab tagging was conducted at Humboldt Bay and Crescent City Harbor. A total of 3,147 market crabs was tagged. Of these, 2,800 were tagged at Crescent City.

Relative abundance studies of juvenile market crabs in Humboldt Bay is continuing. There is a good abundance of 1973 year class crabs present.

Crab specimens were taken for studies of gonadal development.

Shrimp: Three trips were made aboard the bay shrimp trawler JEWEL K during the month. Eight shrimp samples were obtained. Sex composition was 30.2 percent males and 69.8 percent females. A total of 41 percent of the females were gravid. Heads-on counts per pound averaged 272 with a range of 198 to 382.

Age composition of market samples for the first three weeks of July ranged from 43 to 66 percent I's and 43-56 percent II's, with a few each of 0's and III's. Some primary females and a very few females with headroe showed up in samples from the third week. The appearance of headroe females and the large numbers of incoming year class shrimp reported by fishermen since July 1 are both unusually early.

Oysters: Experimental oysters and trays were cleaned at two stations on Tomales Bay. A rack was also repaired by seasonal aid help. Oysters were measured and counted. Survival and growth have been good.

Mortality among commercial and experimental Pacific oyster populations in Humboldt Bay is negligible. In previous years the summer mortality has usually peaked by this time.

Clams: Littleneck clams on an experimental plot were counted and measured at Tomales Bay Oyster Company. Some of these clams which were planted from seed have reached legal size in two years.

Native littleneck clam samples were obtained from five locations at Tomales Bay. A minimum of 50 clams were dug at each station. All clams were measured and density noted. Clams were abundant at most locations with good representation of one and two year old clams.

4. MARICULTURE RESEARCH AND DEVELOPMENT (Bartlett Project 4-20-R)

Principal effort for the month was directed toward determining upper temperature tolerance of adult red abalone. Abalone were maintained at specified temperatures for 120 hours; all specimens survived at 21°C (69.8°F), and all died within two hours at 33°C (91.4°F).

The laboratory received 13 ovigerous spiny lobsters, collected at San Clemente Island by Abalone Project personnel. The lobsters were distributed in water of various temperatures (7-8°C, ambient, and 15°C). On July 7 and July 16, lobsters held at 15°C began releasing phyllosome larvae. Salinity tolerance experiments, and two mass culture systems were initiated. Success with rearing phyllosomes was poor, and all experiments and culture systems were discontinued until a new hatch commences.

Growth rate of 1972 year class spot prawns, in mass culture systems, closely parallels that of 1971 year class prawns.

Size of laboratory spawned Pacific oysters, held in Elkhorn Slough for 10 months, has greatly increased during the last two months; growth during June and July was nearly double that of the preceding eight months. Preparations are being directed toward additional laboratory spawnings, in September and October, of "mortality resistant" Pacific oysters. Algae culture activity is shifting toward the production of mass quantities of uni-cellular algae for the oyster larvae. New inoculations of algae have been received from Indiana University and from Dr. Dov Grajcer, NMFS, Galveston, Texas.

With the assistance of Paul Petrich, a frame for use in pulling the two 10 hp submersible pumps from the ocean intake are being constructed.

Much of the month was spent preparing manuscripts and two progress reports.

One school group toured the laboratory in July.

5. MARINE RESOURCES PATHOLOGY

Samples of fish were procured from Monterey Bay, San Francisco Bay and from the ocean near the entrance of Humboldt Bay. The fish from these samples are currently being examined for abnormalities. Length-weight relations are being developed for selected species.

6. SEA OTTER

Most of the month was spent on analysis of data for the Sea Otter Report on 5 years of sea otter research. Data being analyzed for the report include aerial and surface censuses, food habits observations, results of trapping and tagging operations, examination of sea otter remains, etc.

Sea otter mortalities have continued at a low level during the month with only 2 carcasses being recovered through July 25.

7. ABALONE

Two days were spent locating permanent diving stations in the Diablo Cove study area for Dan Gotshall.

Assistance was given to Information Officer Ralph Young on the Abalone Tagging Program for a future Outdoor California article.

During a nine day cruise at San Clemente Island aboard the research vessel KELP BASS, we tagged 1,000 pink abalones, *Haliotis corrugata*, at China Cove, 872 at Pyramid Head, and 78 green abalones, *Haliotis fulgens*, inside Pyramid Head.

Predators were a serious problem, primarily California sheephead, *Pimelometopon pulchrum*, and the bat ray, *Myliobatis californica*. Sheephead did not appear to attack tagged abalones unless they were cut or soft parts of the abalone were exposed. On the other hand, bat rays were serious predators and were observed on numerous occasions to crush and ingest abalones and swim off with others. On two occasions bat rays took whole bags of abalones from the divers.

The new engine has finally arrived for the research vessel MOLLUSK. Hopefully, the MOLLUSK will be ready to meet part of the August cruise schedule.

8. PELAGIC FISH

A. Fishery

<u>Landings in tons</u>	<u>January 1 - July 31</u>				
	<u>1973*</u>	<u>1972</u>	<u>1973*</u>	<u>1972</u>	<u>10 yr. mean 1962-1971</u>
<u>Species</u>					
Anchovy	--	365	40,732	33,665	12,682
Mackerel, jack	1,432	3,500	5,607	11,973	15,880
Mackerel, Pacific	--	0	9	25	2,713
Sardines	--	68	41	112	974
Squid	<u>25</u>	<u>993</u>	<u>4,110</u>	<u>9,549</u>	<u>7,485</u>
TOTAL	1,457	4,926	50,499	55,324	39,734

*Estimated. Accumulated landings are revised monthly.

B. Fishery Research Monitoring

Anchovy: Unprecedented high world fish meal prices have created intense interest in the upcoming anchovy reduction season. Both Monterey and San Pedro fishermen are talking about a price of at least \$50-\$60 per ton. The central California season opens August 1st and the southern California season September 15th.

Jack Mackerel: Most catches were made at Cortes Bank. The San Pedro fleet expended a good deal of effort on bluefin tuna and bonito.

Squid: Monterey squid landings continued to be uncommonly low. A new price of \$110 per ton was negotiated.

Live Bait: The live bait situation in most areas changed little during the past month. Availability of anchovies typically becomes difficult during July; however, this season the problem concerns the size of the fish and their behavior which have caused problems for many bait haulers. Smaller fish still predominate between Los Angeles and San Diego with a small percentage of larger bait mixed in. Large fish remain available off Redondo Beach and Santa Monica Bay with some schools reported off Oxnard and Ventura during the past week. Most bait fishermen continue to expend considerable effort in order to meet their commitments.

C. Biological Studies

Jack Mackerel Tagging Program: A total of 621 jack mackerel and 114 Pacific mackerel was tagged this month. The majority of fish were tagged and released in King Harbor, Redondo Beach, although 67 Pacific mackerel were tagged at La Jolla. No substantial movement was noted from the 3 jack mackerel and 16 Pacific mackerel tag returns in July. A considerable number of the Pacific mackerel tagged at La Jolla in June have been recaptured this month from San Diego sportfishing boats.

D. Fisheries Resources Sea Survey (M63R)

An acoustic survey of the anchovy population residing in central California waters was completed early in the month. Despite good survey coverage and operating conditions, no anchovies were caught by midwater trawl and no schools resembling anchovies were detected by acoustic gear. Reports from Monterey Bay indicate anchovy schools were located too close to shore for detection by our survey.

Data Report No. 22 containing data collected by sea surveys during 1972 was received from the printer and distributed. This report is normally published in January or February, but was tardy this year due to a 7 month delay in obtaining a computer contract.

A frequency counter for calibrating our acoustic gear was obtained through an excess Government property agency thereby saving the project \$800.00.

The scientific echo sounder and sonar aboard the ALASKA was calibrated for source level and receiver sensitivity. Source levels of both equipments were below manufacturer specifications.

Sea Survey Data Analysis: A manuscript describing the southern California jack mackerel fishery for 1952-53 through 1956-57 seasons was completed and is now being edited. Ageing of otoliths for the 1957-58 and 1958-59 seasons also was completed.

Examination of past sardine data continued. A final version of the annual Pacific mackerel report was agreed upon.

9. BIG GAME FISH

A. Albacore - Research

Life History: Age and growth--Samples of scales and length frequencies were obtained from one of the two vessels landing albacore at Terminal Island this month. The fish averaged 21 pounds and were caught near Rodriguez Dome west of San Miguel Island.

Population Dynamics: Modification of our computer program ALBCAT, in order to accommodate the new log format, began early in the month.

Waterfront personnel received logs from three vessels.

Exploratory Fishing: The last of the albacore survey vessels (chartered by AFRF) arrived in Astoria, Oregon about the middle of July. More than 11,000 were caught and over 1,700 albacore were tagged during the survey.

Fisheries: Sport--Very poor fishing prevailed during the month despite extensive exploratory fishing by San Diego based boats.

Commercial--Fishing continued poor off California with unconfirmed reports of fair catches being made off Oregon and Washington.

The price to fishermen has not been settled to date, and almost no commercial fishing took place this month.

B. Bluefin - Research

Life History: Age and growth--Eight weight-length-scale samples were obtained from bluefin landed at Terminal Island canneries. These fish ranged from 10 to 40 pounds.

Work continued on the bluefin age and growth manuscript.

Fisheries: Sport--Good catches of bluefin continued to be reported by San Diego partyboats in July. Preliminary figures for June indicate that a total of 1,363 bluefin was caught by partyboat anglers. By comparison only 37 bluefin were reported landed through June of 1972.

Commercial--Over 1,300 tons of bluefin were landed at the Terminal Island canneries in July by local seiners. Preliminary figures indicate that landings of bluefin at the fresh fish markets totaled 14 tons. Fourteen tons were also landed in June at the fresh fish markets.

C. Pacific Bonito - Research

Population Structure: A total of 180 eye lenses were collected this month for population analysis by electrophoresis.

Life History: Age and growth--Three otolith and vertebra samples were read from five samples collected at the Terminal Island canneries.

Migration--In July, 95 bonito were tagged and released from partyboats in the area from the Coronados to Rocky Point. Thirty-four tags were returned this month with two having been out 13 months.

The KERP BASS returned from a 9-day trip in southern California waters. Project personnel tagged 84 bonito, ranging in size from 390 to 535 mm. Analysis of the 1968-1973 bonito tagging results is continuing.

Resource Management: Partyboat sampling--In July, 251 bonito were measured. They ranged in size from 41 to 49 cm, and were one year old. Preliminary results indicate that anglers also caught only one age group of bonito this month. Fishing effort was 48% greater in June compared to May, while the catch (65,568) was 88% greater in June than in May (34,915). The abundance index (0.87) for June indicates that anglers found bonito more abundant than during May when the index was only 0.69.

<u>Age group</u>	<u>JULY</u>		<u>JUNE</u>	
	<u>% age composition</u>	<u>% age composition</u>	<u>Estimated catch (nos)</u>	<u>Abundance index</u>
0	0	13	8,524	0.11
I	100	87	57,044	0.76
II	0	0	0	0
III	0	0	0	0
			65,568	0.87

Market Sampling--Two length-frequency samples were taken from the fresh fish markets in San Pedro, and one was taken from the San Diego markets. They consisted entirely of one year old fish.

Fisheries: Sport--Sport catches continued good in July, although many schools were sighted which refused to respond to chumming or lures.

Commercial: Over 1,200 tons of bonito were caught and landed at the canneries by seiners fishing locally and in Mexican waters: The Mexican fish were held for export while the smaller fish from southern California waters were sold for pet food.

Preliminary figures indicate that 16.7 tons of bonito were landed at the fresh fish markets in July.

D. Billfishes - Research

A total of 32 swordfish was measured at the fresh fish markets in July. Measurements of the dressed fish (taken from anterior edge of the cleithrum to fork in tail) showed the average length to be 1,682 mm and the average dressed weight to be 263 pounds.

Fisheries: Sport--No information

Commercial--Catches of swordfish increased greatly in July, with one boat landing 13 fish during one trip. A number of very small fish (dressed weight less than 100 pounds) and a few large fish (dressed weight more than 400 pounds) were noted. Most catches were made in the area of Catalina Island.

E. California barracuda - Research

Life History: Migration--A total of 627 barracuda was tagged and released aboard Department research vessels and southern California partyboats in July. Five tagged fish were recovered by anglers in July. One fish moved north, two fish exhibited no net movement and two fish moved south. Efforts to inform fishermen and partyboat operators about our barracuda tagging operations were continued.

Resource Management: Partyboat sampling--Samplers aboard partyboats during July measured a total of 416 barracuda. These fish ranged in size from 41 to 96 centimeters total length (average = 65 cm) and I to VII+ years in age.

Preliminary results indicate that age groups III through V provided 88 percent of the partyboat catch in July. Sampling in July also indicates that IV year old fish provided a larger percent of the catch than in June, while II year old fish provided a smaller percent of the catch than in June.

Figures for July are incomplete; however, the fishing effort in June was 82 percent greater than during May and anglers caught 77 percent more barracuda.

About 88 percent of the barracuda sampled aboard partyboats during July were shorter than the legal limit of 28 inches and were released. During June, about 89 percent were short.

	<u>JULY</u>		<u>JUNE (226)</u>	
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>	<u>Calculated catch*</u>	<u>Abundance index</u>
I	0	0	0	0
II	7	14	6,693	0.079
III	29	30	14,341	0.171
IV	47	39	18,643	0.222
V	12	12	5,736	0.068
VI	3	4	1,912	0.023
VII+	2	1	478	0.006
	100	100	47,803	0.569

* includes released fish

Market sampling--Barracuda landed at the fresh fish markets in July also were sampled. The 40 fish measured ranged 71 to 104 cm in length and IV to VII+ years in age. The average was 3.6 pounds and 77 cm.

Preliminary results indicate that market fishermen harvested large barracuda (age group IV+). Five year old fish predominated in the catch during May, June and July.

Commercial fishermen delivered about 531 pounds of barracuda this month compared with 7,969 pounds for June and 2,752 pounds for May. Light catches in July may be due primarily to gill netters setting their nets in deeper water for white seabass.

<u>JULY (40)</u>		<u>JUNE (210)</u>
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>
I	0	0
II	0	0
III	0	0
IV	10	23
V	41	42
VI	28	19
VII+	21	16
	<u>100</u>	<u>100</u>

Fisheries: Sport--Barracuda sport action was moderate during July, throughout most of southern California. An exception was the San Diego area where good catches were made near the Coronados Islands during the later half of the month. Preliminary figures also indicate that legal size barracuda were most abundant between Oceanside and Dana Point (reported number of barracuda per angler = 0.17), followed by Huntington-Newport-Balboa (0.13), San Diego-Mission Bay (0.08) and San Pedro-Long Beach (0.03).

F. White seabass - Research

Resource Management: Partyboat sampling--White seabass caught by the partyboat anglers were sampled in July. The 6 fish measured ranged 36 to 85 cm in length and II to V years in age.

Preliminary results indicate that anglers set their hooks in four age groups of white seabass this month, with groups II and V providing 66 percent of the catch.

Figures for July are incomplete; however the fishing effort in June was 105 percent greater than in May, and anglers caught 224 percent more white seabass. In addition, the abundance index of 0.01 for June indicates that anglers found white seabass more abundant than during May.

<u>JULY</u>		<u>JUNE</u>	
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>	<u>Estimated catch (nos)</u>
0	0	No sample	-
I	0		-
II	33		-
III	17		-
IV	17		-
V	33		-
			<u>Abundance index</u>

Market sampling--White seabass landed at the fresh fish markets were sampled in July. The 85+ fish measured ranged 93 to 141 cm in length and VII to XIII+ years in age.

Preliminary results indicate that age groups X, XI and XIII+ provided about 61 percent of the catch.

<u>JULY</u>		<u>JUNE</u>
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>
IV	0	3
V	0	28
VI	0	0
VII	6	7
VIII	12	14
IX	14	10
X	27	7
XI	17	10
XII	7	7
XIII+	17	14

Fisheries: Sport--Catches of white seabass were slow this month.

Commercial--There were more white seabass caught locally in the samples this month than last.

G. California yellowtail - Research

Resource Management: Partyboat sampling--Yellowtail caught by partyboat anglers were sampled in July. The 100+ fish measured ranged 47 to 123 cm in length and 0 to XII+ years in age.

Preliminary results indicate that anglers set their hooks in 12 age groups of yellowtail this month, with groups V and VI providing around 45 percent of the catch. By comparison these age groups contributed about 5 percent in June and around 59 percent in May.

Figures for July are incomplete; however, the fishing effort in June was 63 percent greater than May and anglers caught 121 percent more yellowtail. In addition, the abundance index of 0.76 for June indicates that anglers found yellowtail more abundant than during May.

<u>JULY</u>		<u>JUNE (591+)</u>		
<u>Age group</u>	<u>% age composition</u>	<u>% age composition</u>	<u>Estimated catch (nos)</u>	<u>Abundance index</u>
0	1	0	0	-
I	9	7	4,001	.05
II	11	28	16,006	.21
III	14	39	22,294	.30
IV	7	18	10,290	.13
V	24	4	2,287	.03
VI	21	1	571	.01
VII	6	1	571	.01
VIII	1	1	571	.01
IX	0	0	0	-
X	1	0	0	-
XI	2	0	0	-
XII+	3	1	571	.01

Market sampling--Yellowtail landed at the fresh fish markets were sampled in July. The 21+ fish measured ranged 66 to 93 cm in length and II to VI years in age.

Preliminary results indicate that age groups III and VI provided about 53 percent of the catch.

JULY

<u>Age group</u>	<u>% age composition</u>
0	0
I	0
II	19
III	29
IV	14
V	14
VI	24

Fisheries: Sport--July catches were much slower than during June.

Commercial--A few catches of yellowtail were made during the month.

H. Miscellaneous

Big Game Resources--Early in July the long range partyboats experienced good fishing for giant sea bass. As a result, we obtained 70 total length measurements.

10. SPORTFISH

A. Partyboat

Preliminary report of the partyboat catch and effort through June 1973 compares with 1972 as follows:

<u>Through June</u>	<u>1973</u>	<u>1972</u>	<u>Preliminary Catch</u> <u>June, 1973 only</u>
Rockfish	1,474,546	1,458,257	317,721
Kelp & sand bass	207,458	236,572	123,185
Pacific bonito	165,338	16,164	65,568
Yellowtail	96,601	18,081	57,162
Halfmoon	79,421	40,822	41,698
Pacific mackerel	58,499	96,743	19,591
Salmon	50,635	81,489	12,556
Barracuda	14,577	12,315	5,501
Calif. halibut	4,437	3,403	1,728
Striped bass	1,857	3,057	1,233
Sturgeon	330	569	33
Total fish	2,281,658	2,111,591	676,537
Total anglers	332,440	299,812	110,558

B. Central California Marine Sportfish Survey

Kelp greenling aging, maturity, food, and meristic studies were continued.

Figures for Fish Bulletin 158 are nearing completion and the entire text has been edited for publication.

Interviews were made of prospective biologists interested in transfer to the new Jr. Aquatic/Asst. Marine Biologist position in the project.

Project personnel attended a skindiving meet at Van Damme State Beach on July 29. Houk dove with Jim Hardwick to collect young kelp greenling and to make observations on squid spawning.

11. SPORTFISHING IMPROVEMENT PROJECT

Fishing Maps: The text for the San Diego-Orange Counties fishing map was rewritten and submitted to the MRR editor. We are selecting appropriate photographs to go with the text.

Sportcatch Assessment: We are making angler counts every two hours at a number of sites along the Orange County coast. Use profiles will help us determine which areas are to be used in the continuous sampling plan to be established later. Initially, the profile study is limited to Orange County.

General: Twenty thousand striped bass, now in rearing ponds at Elk Grove hatchery, have been earmarked for transplantation into southern California waters at our discretion. A "how to" booklet detailing methods to prepare marine game fish for cooking is under way. A survey of the Santa Margarita River estuary as a possible planting site for anadromous fish showed that upper bay salinities were low, about 20⁰/oo. Temperatures ranged from 69.5 to 73⁰F.

A tagged sand bass at liberty 1211 days grew 6.6 inches and moved 9 miles. One angler took three tagged spotted sand bass in two days. All three were marked in January 1973, and all were taken within a short distance of the release point.

12. ENVIRONMENTAL SERVICES

A. Water Quality and Pollution Activities

Waste Discharge Requirements: Seven proposed waste discharge requirements were received for review. Concurrence was expressed on five, while a change of permissible discharge dates was requested for a discharge into San Diego's Mission Bay Aquatic Park in order to protect anticipated fish spawning activities.

Recognition of the use of the Huntington Beach Flood Control Channel as a feeding area by the California least tern was recommended for a discharge of dewatering wastes into this area.

Report Review: Objections were raised to a proposed study by California State University, Humboldt, to use a salt marsh for wastewater treatment.

Recommendations were made to enlarge the scope of studies proposed by Southern California Edison Company relative to an Exception to the Thermal Plan for San Onofre Nuclear Generating Station Units 2 and 3.

General concurrence was expressed for a proposed San Francisco Marine Waste Disposal Study.

Pollution Control Activities: An industrial discharge into Balboa Creek was investigated in conjunction with Wildlife Protection. Toxic material was traced to the property of a major motion picture firm in Culver City. Action is awaiting further laboratory analysis and discharge permit search.

Regional Board Hearings: The Department's position regarding a request for an exemption from the Thermal Plan for Unit 5 of the Encina Power Plant, San Diego County, was presented before the Regional Water Quality Control Board, San Diego Region.

Meeting Attendance: Monthly meetings of the San Diego, Los Angeles, and Santa Ana Regional Water Quality Control Boards were attended.

B. Water Development Activities

Army Corps of Engineers: Thirteen Public Notices were reviewed and acted upon during the month (San Francisco District 10, Los Angeles District 3). Mitigation or restoration was requested for two illegal fills, one in Arcata Bay and one in Tijuana Slough.

A Corps of Engineers Deepwater Port Study was reviewed and found adequate for the present stage of planning.

Coastal Zone Commissions: A meeting of the North Central Coastal Zone Commission was attended. Fencing of Goleta Slough was discussed with the staff of the South Central Coastal Zone Commission. One permit application was reviewed this month.

EIR and EIS Reviews, General: The Final Environmental Impact Statement for Diablo Nuclear Power Plant Units 1 and 2 was reviewed and found adequate in its coverage of our concerns.

An EIR for a commercial recreational complex in Redondo Beach was also found adequate.

An EIR for an interceptor sewer in Orange County was found inadequate in its treatment of possible effects on marine resources by way of the additional loads to be generated by the project for a treatment plant not presently meeting the Ocean Plan.

An EIS for the issuance of a full-term operating license, San Onofre Nuclear Generating Station Unit I, was found inadequate and recommendations for studies to be performed to correct the EIS deficiencies were suggested as conditions for issuance of the operating license.

State Lands Commission: One document was received for review; no comments were necessary.

Unanticipated Activities: Information on an EIS for the Huntington Beach Generating Station was provided to UTN Corporation. Input was provided to Regional Water Quality Control Board, San Francisco Region, and Standard Oil of California regarding a proposed deep-water port oil facility in Estero Bay. Basic fisheries resources information was provided to Contra Costa County Department of Education for its Marine Ecological Research Project.

A meeting was attended with representatives of the City of Sausalito and Bureau of Outdoor Recreation to pursue efforts to keep a pier used by commercial fishermen from being sold by the Federal Government.

Information on southern California coastal power plants was provided to BSFW, Washington, D. C.

Miscellaneous Items: A document on proposed beneficial uses and water quality objectives for Basin 2 was reviewed and comments regarding classification and protection of shellfish habitats were provided.

Commencing on July 16 common murre deaths were reported from the coastal zone reach extending from Half Moon Bay south to the Santa Cruz area. Estimated mortality ranged from 2500-4000 birds. No cause for the die off has been established, and the incident is similar to one documented in 1968. As of the end of the month, losses seem to be tapering off.

12. INSHORE FISHERIES HABITAT EVALUATION AND MONITORING

Project personnel participated in a 9 day abalone tagging cruise aboard the KELP BASS at San Clemente Island.

Several man-days were spent completing SWRCB contract studies. The report on the Seaside outfall was completed and awaits final approval before being submitted to the SWRCB. The Santa Ana River discharge and the Huntington Beach brine discharge surveys are both nearing completion. However, due to the increased work load and summer vacations, work on the final 2 reports has been temporarily halted.

A final "mock-up" of a proposed commercial lobster log book was completed and taken to the State Printing Office. The log books should be ready for distribution this coming lobster season if our proposed log book system is accepted by the Fish and Game Commission.

A preliminary analysis of the lobster fishery and a survey of worldwide lobster management programs were completed. Our next step is to identify research needs and formulate a 2-year program upon which we can make sound management proposals.

ENVIRONMENTAL AND BEHAVIORAL STUDIES OF COASTAL SPORT FISHES

Most of the month was spent working on man-made reef projects. Tire reef units which have been set out at Horseshoe Kelp were monitored, and mapping the surrounding rock outcrops was begun. To date the tires have not moved.

Assisted by Marine Patrol, two buoys were placed on the permit location of the Ventura man-made reef, and the following week 96 tires were placed on the sea floor, using the DOLPHIN. The tires were tied in 6-tire units by local Ventura volunteers, led by "Tex" Goddis and Sid Moore.

One day was spent on surveys connected with converting the wrecked ship LA JENNELLE into an offshore reef and a shoreside fishing and recreation pier. A tentative offshore site in 100 feet of water was surveyed after the Army Corps of Engineers rejected our 60 foot site as too shallow. The 100 foot site had a firm mud bottom with numerous unidentified mud-boring clams. The area inshore of the proposed pier currently supports a modest pismo clam bed. Since this area will be subject to sand fill after pier construction, transplantation of the clams will be recommended.

About four hours were spent, while traveling to and from Ventura, at Zuma Beach making a survey of Pismo clams to compare with a similar survey reported on by John Fitch 10 years ago. We sadly found 7 clams missing from our sample stored in the wet lab freezer for four days. We can only hope the culprit who took them knows how to prepare them.

14. POINT ARENA ECOLOGICAL SURVEY (P.G. & E. Contract S1902)

During the month project members continued work on the final report of studies performed at Point Arena, for an August 1 deadline. Data were also generated on the meristics and food habits of the China rockfish. Among food items observed from the stomachs of these fish, juvenile abalone and masking crabs appear to be most abundant. Several invertebrates have been added to our Point Arena species list from this stomach content study, most notably an unusual anomuran crab, *Phyllolithoides papillosus*

Gotshall and Laurent met with Burge and Schultz on the 9th and 10th to reestablish permanent subtidal stations at the Diablo Cove Nuclear Power Plant study site, 5 miles north of Avila. Two reconnaissance dives were made in the Monterey Bay area during the month; on the 4th by Gotshall and Laurent off Pescadero Point, Pebble Beach, and on the 22nd by Gotshall and Lea on the shale ledges off Del Monte Beach, Monterey.

An article by project members concerning the Point Arena project was submitted for publication to Oceanic Abstracts.

15. KELP

Transplanted kelp in the Abalone Cove study area continued to look well. Many fronds are showing evidence of maturity and are becoming encrusted with bryozoans and hydroids, a normal occurrence this time of year. The mature fronds are beginning to be foraged upon by opaleye, *Girella nigricans*, but new fronds are continuing to be produced by the transplants.

Twenty additional cinder blocks were filled with concrete. These blocks will be used as anchors to hold the chains upon which the transplants are secured in place.

Three days were spent by project personnel servicing the ANCHOVY.

Wilson spent seven and Haaker twenty-two days on vacation.

16. MARINE FISHERIES STATISTICS

A. Source Documents

The following source documents were edited: May market, June marine sport catch, cannery, trawlers and shrimp.

Editing is in progress on the following source documents: June market and bait, July cannery, marine sport catch, shrimp and bait.

The June marine sport catch letter was prepared and mailed. Delinquent partyboat lists were prepared and sent to boat operators and wardens. The June striped bass listing was prepared and sent to Anadromous Fish Investigations.

B. Machine Data Processing

Regular reports completed were: fourteenth period (1972) statistical reports for the Bulletin, May trawlers, June cannery, jack mackerel, marine sport catch, salmon, striped bass, pacific mackerel and several 1972 catch bulletin reports.

Special reports run were: lobster fishermen reports, 1972-73 lobster, sea survey cruise 73-A-5, striped bass tagging deck and crab cruise data deck.

C. Licenses and Registrations

Commercial fishing licenses and boat registrations continue heavy.

Master list changes were sent to Sacramento and new master lists sent to the field offices.

Lists of unregistered boats making deliveries were prepared and distributed to wardens.

Supplemental shrimp permittee lists were prepared and mailed.

D. Information

The June cannery and marine sport catch were decoded and distributed and the June tuna letter mailed.

Data for the 1972 California Statistical Abstract was prepared for Pauline Sweezey of the Department of Finance: Budget Division.

Of the 250 licensed wholesale fish dealers in area seven, 225 have renewed for the 1973-74 license year.

E. Fishery Surveillance

An extensive trip was completed throughout northern California to distribute supplies of landing receipt books to dealers for salmon season. Most of the remainder of the month was spent on special diving assignments.

F. NMFS Commercial Fisheries Survey

Work continues on compilation and summarization of comments from the questionnaire survey. By far the most frequent item suggested is the extension of an exclusive U.S. fishery zone beyond the present twelve miles.

Report B was finally completed and delivered.

17. VESSELS

ALASKA: The ALASKA returned to home port on July 2, 1973 after a two week anchovy survey off central California.

The crew was on vacation and CTO for the balance of the month.

N. B. SCOFIELD: The SCOFIELD conducted a flatfish study off northern California from July 5 through the 31st.

KELP BASS: The KELP BASS engaged in bonito tagging in southern California waters from July 5 through July 13.

The vessel conducted an abalone and lobster study at San Clemente Island, July 18 through July 26.

18. MISCELLANEOUS

A. Meetings, Talks and Visitors

July 5	-Moore spoke to a class of instructors at Pepperdine College on the subject of pollution - Los Angeles
July 5	-Capt. Bob Freeman, Fisheries Officer, Camp Pendleton, toured the Long Beach facility.
July 10	-Miller, Lea, Hardwick and Wild met individually with Radovich, ORB, to discuss research and management aspects of their projects - Monterey
July 10	-Ebert met with Radovich at Monterey to discuss marine culture project objectives.
July 11	-Gates, Kaneen, Wilson, Odemar and Hardy met with representatives of Kelco and Wheeler North regarding liming operations - Long Beach
July 12	-D. Wilson and Miller attended AMBAG oceanographic meeting to review Monterey Bay studies - Seaside.

- July 12 -Moore attended Los Angeles-Long Beach Harbor Liaison Group Meeting - Terminal Island
- July 17 -Odemar, Bell, Haugen and McAllister met with Dr. Farris at Cal State University, San Diego to discuss lobster research.
- July 17 -Phillips spoke to a class at Cal State University Long Beach on pollution.
- July 18 -D. Wilson attended Interagency Coordinating Committee meeting, San Francisco Regional Board - Oakland
- July 18 -Carlisle met with Chuck Kirks, State Lands Division to discuss the Environmental Impact Report for the Sea Reef artificial reef - Sacramento
- July 18 -Young met with Stan Kabel, AFB, and Bill Schafer, IFB re supply and culture problems of salmon and striped bass in a southern California environment.
- July 18-19 -Gates attended Regional Managers Meeting - Sacramento
- July 24 -Gates, Fullerton, Leiby, MRR staff, Frank Hubbard met with representatives of Sportfishing Association of California, sport news media, partyboat fishermen and bait haulers regarding Ocean Sport Fish Improvement Program
- July 25-26 -Mall attended quarterly Environmental Services Supervisor's meeting and detailed regional activities for MRR to the new Branch Chief, Don Lollock.
- July 26 -Gates and Staff attended Budget Hearings - Sacramento.
- July 27 -Gates, Director, Deputy Dir., Greenhood, Kaneen, Frey and Frank Hubbard met with commercial fishermen, fishing industry, processors and union representatives regarding anchovies.
- July 27 -Ebert, Haseltine, Kelly, Lea, Laurent, Orcutt and Dahlstrom attended open house at the International Shellfish Enterprises' Moss Landing Hatchery facility.
- July 27-28 -Gotshall attended an Underwater Parks Advisory Board Mtg. in Point Arena.
- July 30 -Monterey personnel attended a training meeting on radio procedures - Monterey.
- July 30 -Carlisle met with Casey Buchter and several associates of the South Central Coastal Zone Commission to provide insight and information on coastal resources - Santa Barbara.
- July 31 -Carlisle met with Bruce Tibbey to discuss problems related to construction of Marina Pacifica in Long Beach - L.B.



Doyle E. Gates
Regional Manager

A. ARREST REPORT

Number of persons arrested as compared to same periods last year:

363	321
Same Month Last Year	Current Month
1855	2077
Total Arrests Same Period Last Year	Total Arrests This Year

Remarks - To explain any marked changes in above totals _____

Fines paid.....	\$9,811.00	\$10,876.00
	Same Month Last Year	Current Month
Total fines to date.....	\$64,113.50	\$60,921.00
	Same Period Last Year	Same Period This Year

Remarks - To explain any marked changes in above totals _____

Jail days served.....	24
Jail days suspended.....	50
Cases Dismissed.....	4
Cases in which all of fine was suspended.....	58
Juvenile cases turned over to juvenile authorities or parents contacted.....	
Hunting licenses revoked by court.....	
Hunting licenses suspended by court.....	
Sport fishing licenses revoked by court.....	
Sport fishing licenses suspended by court.....	

Summary: Following is the number of violations prosecuted against type of violation.

Hunting, no license.....	Angling, no license.....	176
Waterfowl.....	No inland stamp.....	
Deer.....	Trout.....	
Pheasant.....	Striped Bass.....	
Resident small game.....	Other inland fish.....	
Doves and pigeons.....	Angling more than one rod.....	4
Mountain lion.....	Clams and shellfish.....	84
Bear.....	Commercial abalone.....	
Raptors.....	Commercial lobster.....	
Loaded gun in car.....	Commercial fish.....	9
Baited pond shooting.....	Commercial fish records.....	
Protected nongame birds, fully protected, rare or end. species	Ocean sportfish.....	35
Litter.....	Pollution (5650) (Oil).....	7
Public shooting area trespass.	" " (Other).....	
Trespass (2016-18).....	Stream obstruction (5948).....	
Prohibited species.....	1601-1602.....	
	Miscellaneous.....	6
	TOTAL	321

B. ASSISTANCE TO OTHER LAW ENFORCEMENT AGENCIES

1. Number of cases filed by Wildlife Protection officers for violation of Penal or other code sections.....	0
2. Number of cases filed by Wildlife Protection officers for city or county ordinances.....	0
3. Number of cases turned over to federal agencies for filing.....	0
4. Number of cases of assistance to other agencies resulting in filing of charges (not included in 1; 2, or 3 above).....	0
5. Number of cases involving felony charges.....	0
6. Section 151 Harbors & Navigation Code _____	0
Total Fines Paid _____	cases

C. DEER ACCIDENTALLY KILLED

1. Road kills by motor vehicles _____	0
2. Kills from other causes (railroads, canals, dogs, etc.) _____	0

D. HUNTER SAFETY REPORT

1. Hours spend on Hunter Safety Training.....	10
2. Hunter Safety classes attended.....	
3. Hunter Safety instructors contacted.....	
4. Hunter Safety instructor applicants interviewed.....	5
5. Hunter safety instructor training classes conducted.....	
a. Number of instructors attending.....	
6. Public agencies (law enforcement agencies, recreational departments or districts, schools, etc.) contacted about Hunter Safety.....	
7. Private organizations (service clubs, Boy Scouts, sports- men clubs, etc.) contacted about Hunter Safety.....	
*8. Expenses charged to Federal Aid W58H1 during report period...	
*9. Mileage charged to Federal Aid W58H1 during report period....	
*Regional Hunter Safety Coordinator Federal Aid W58H1 Employees only.	
10. Narrative report of highlights in Regional Hunter Safety activities. (Use space below or additional sheets):	